

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A ~~transparent substrate, especially of the glass type,~~
~~which comprises composite product, comprising:~~

a transparent substrate;

a multilayer system comprising a functional layer and a layer C; and

a cover layer;

wherein:

the multilayer system has a solar-control function or an energy-control function;

the functional layer reflects at least some radiation of the solar spectrum;

the coating that contains at least one layer C comprises based on silicon or aluminum
[nitride, carbonitride, oxynitride or oxycarbonitride], ~~or on a mixture of the two;~~

the layer C which is surmounted by a the cover layer, characterized in that;

the cover layer is an oxide-based mechanical protection layer, ~~this the oxide~~ being
optionally oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally
nitrided; and

the cover layer comprises at least one of:

(i) at least one titanium oxide containing another metal M given by the formula
TiM_pO_xN_y where p and y may be zero;

(ii) at least one oxide containing Zn and at least one other element chosen from
Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Bi, Ce, Ti, Zr, Nb, Ta and Hf; and

(iii) at least one oxide containing Zr and at least one other metal.

Claims 2-6 (Cancelled).

Claim 7 (Currently Amended): ~~The substrate as claimed in the preceding composite~~
~~product according to claim 1, wherein the cover layer comprises the at least one oxide (ii),~~
~~characterized in that the oxide is the at least one oxide (ii) being a mixed oxide based on zinc~~
~~and another metal, especially one based on comprising zinc and tin (ZnSnO_x), or on zinc and~~
titanium (ZnTiO_x), or on zinc and zirconium (ZnZrO_x).

Claim 8 (Currently Amended): ~~The substrate as claimed in the preceding composite~~
~~product according to claim 1, wherein the cover layer comprises the at least one oxide (ii),~~
~~characterized in that the zinc based mixed oxide the at least one oxide (ii) is being doped by~~
~~with~~ at least one other element chosen from Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Ce, Ti, Zr,
Nb, Hf and Ta.

Claim 9 (Cancelled).

Claim 10 (Currently Amended): ~~The substrate as claimed in the preceding composite~~
~~product according to claim 1, wherein the cover layer comprises the at least one oxide (iii),~~
~~characterized in that the oxide containing at least zirconium is the at least one oxide (iii)~~
~~being doped by with~~ at least one other element chosen from Al, Ga, In, B, Y, La, Ge, Si, P,
As, Sb, Ce, Ti, Zn, Nb, Hf and Ta.

Claim 11 (Currently Amended): ~~The substrate as claimed in any one of the preceding~~
~~claims composite product according to claim 1, characterized in that the mechanical~~
~~protection wherein the cover layer is made up from comprises~~ a superposition of oxide layers;
~~such as especially including~~ a combination of ZnO/TiO_2 , $\text{Zn}_r\text{Sn}_s\text{SB}_t\text{O}_x/\text{TiO}_2$,
 $\text{Zn}_r\text{Sn}_s\text{Al}_u\text{O}_x/\text{TiO}_2$ and $\text{Zn}_r\text{V}_v\text{O}_x/\text{TiO}_2$ layers.

Claim 12 (Currently Amended): The ~~substrate as claimed in any one of the preceding~~
~~claims composite product according to claim 1, characterized in that wherein~~ the oxide layer
has a thickness of ~~around about~~ 15 nm or less, preferably less than or equal to 10 nm.

Claim 13 (Currently Amended): The ~~substrate as claimed in any one of the preceding~~
~~claims composite product according to claim 1, characterized in that wherein~~ the layer(s)
~~layer C may furthermore contain further comprises~~ at least one other metallic element such as
aluminum.

Claim 14 (Currently Amended): The ~~substrate as claimed in any one of the preceding~~
~~claims composite product according to claim 1, characterized in that wherein~~ the or each
layer C has a thickness of ~~around about~~ 5 to ~~about~~ 60 nm.

Claim 15 (Cancelled).

Claim 16 (Currently Amended): The ~~substrate as claimed in any one of the preceding~~
~~claims composite product according to claim 1, characterized in that it includes wherein the~~
~~functional layer comprises~~ at least one metallic or metal-nitride-based ~~functional~~ layer.

Claim 17 (Currently Amended): The ~~substrate as claimed in any one of the preceding~~
~~claims composite product according to claim 1, characterized in that comprising the coating~~
~~includes the a dielectric final sequence: sequence of layers including oxide/silicon~~
nitride/oxide, especially ZnO/Si₃N₄/ZnO.

Claim 18 (Currently Amended): ~~The substrate as claimed in any one of the preceding claims~~ composite product according to claim 1, characterized in that comprising the multilayer has the following sequence:

$\text{Si}_3\text{N}_4/\text{ZnO}/\text{Ag}/\text{ZnO}/\text{Si}_3\text{N}_4/\text{cover layer}$

or $\text{Si}_3\text{N}_4/\text{ZnO}/\text{Ag}/\text{ZnO}/\text{Si}_3\text{N}_4/\text{ZnO}/\text{Ag}/\text{ZnO}/\text{Si}_3\text{N}_4/\text{cover layer}$

optionally with a metal blocking layer in contact with at least one of the silver layers.

Claim 19 (Currently Amended): ~~The substrate as claimed in any one of claims 15 to 18~~ composite product according to claim 1, characterized in that the coating wherein the composite product substantially preserves its properties, especially its optical properties, after a heat treatment.

Claim 20 (Currently Amended): ~~A glazing assembly incorporating at least one substrate as claimed in any one of the preceding claims, especially in a multiple glazing or laminated glazing configuration, comprising the composite product of claim 1.~~

Claim 21 (Currently Amended): ~~A process for improving the mechanical resistance of a transparent substrate, especially a glass substrate, which comprises a multilayer that includes at least one dielectric layer C based on a silicon or aluminum [nitride, carbonitride, oxynitride or oxycarbonitride] or on a mixture of the two, characterized in that an oxide-based layer is deposited on at least one dielectric layer C, this oxide optionally being oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided~~ comprising applying a multilayer system comprising a functional layer and a layer C, and a cover layer to the transparent substrate;

wherein:

- the multilayer system has a solar-control function or an energy-control function;
- the functional layer reflects at least some radiation of the solar spectrum;
- the layer C comprises silicon or aluminum [nitride, carbonitride, oxynitride or oxycarbonitride], or a mixture of the two;
- the layer C is surmounted by the cover layer;
- the cover layer is an oxide-based mechanical protection layer, the oxide being optionally oxygen-substoichiometric or oxygen-superstoichiometric and/or optionally nitrided; and
- the cover layer comprises at least one of:
- (i) at least one titanium oxide containing another metal M given by the formula $TiM_pO_xN_y$ where p and y may be zero;
- (ii) at least one oxide containing Zn and at least one other element chosen from Al, Ga, In, B, Y, La, Ge, Si, P, As, Sb, Bi, Ce, Ti, Zr, Nb, Ta and Hf; and
- (iii) at least one oxide containing Zr and at least one other metal.

Claim 22 (Cancelled).

Claim 23 (New): The process according to claim 21, wherein the cover layer comprises the at least one oxide (ii), the at least one oxide (ii) being a mixed oxide comprising zinc and tin ($ZnSnO_x$), zinc and titanium ($ZnTiO_x$), or zinc and zirconium ($ZnZrO_x$).

Claim 24 (New): The process according to claim 21, wherein the cover layer comprises a superposition of oxide layers including a combination of ZnO/TiO_2 , $Zn_rSn_sSB_tO_x/TiO_2$, $Zn_rSn_sAl_uO_x/TiO_2$ and $Zn_rV_rO_x/TiO_2$ layers.